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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/611,230 | 07/06/2000 | Dario Barberis | Q-59991 | 4825 |

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EXAMINER

BURCH, MELODY M

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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3683

DATE MAILED: 03/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|--|--|
| Office Action Summary | Application No. 09/611,230 | Applicant(s) BARBERIS ET AL. CP6 | |
| | Examiner Melody M. Burch | Art Unit 3683 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/10/03 has been entered.

Claim Objections

2. Claims 17-19 and 22 are objected to because of the following informalities: the phrase "and provide" in line 7 of claim 17 should be changed to --and to provide-- to maintain consistent grammatical structure. The remaining claims are objected to due to their dependency from claim 17. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 14, 16, and 17-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re: claim 14. The phrase "brake control signals" in line 2 is indefinite. It is

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unclear to the Examiner whether the brake control signals in claim 14 are intended to be the same or different from the serial brake control signals claimed in claim 12. Similarly, the phrase "information signals" in line 3 is indefinite since it is unclear whether the information signals in claim 14 are intended to be the same or different from the serial information signals claimed in claim 12. Examiner recommends the use of the word --the-- or --said-- to refer back to previously claimed elements if that is Applicant's intention.

Re: claim 16. The phrase "a failure" in line 2 is indefinite. It is unclear to the Examiner whether the failure in claim 16 is intended to be the same or different from that claimed in claim 15.

Re: claim 17. The phrase "brake control or information signals" in line 2 is indefinite. Similar to the issue in claim 14, it is unclear to the Examiner whether the brake control signals and the information signals in claim 17 are intended to be the same or different from those claimed in claim 12. A similar issue exists in line 4 of claim 17 with the phrase "a brake control signal" and in line 8 with the phrase "brake control signals". In the last two lines of claim 17 the phrase "said brake control signals" is indefinite since it is unclear whether the brake control signals are intended to refer to the serial brake control signals in claim 12 or the brake control signals of claim 17.

Re: claim 17. The phrase "the second transmission line brake control or information signals" in line 5 lacks proper antecedent basis in the claim.

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Re: claim 18. The phrase "at least one engine" in the last two lines of the claim is indefinite. It is unclear to the Examiner whether the at least one engine in claim 18 includes or excludes the at least one main engine claimed in claim 12.

Re: claim 18. The phrase "the slave control unit" in the last line of the claim is indefinite. It is unclear as to which slave control unit Applicant is referring to since a plurality of slave control units is previously claimed.

Re: claim 20. The phrase "serial type signals" in the last two lines of the claims is indefinite. It is unclear to the Examiner whether the serial type signals are intended to be the same or different from the serial brake control signals claimed in claim 12.

Re: claim 21. The phrase "a plurality of carriages or wagons" in line 2 is indefinite since it is unclear whether the plurality of carriages or wagons in claim 21 are intended to be the same or different from those claimed in claim 12. Also the phrase "a single transmission line" in lines 2-3 is indefinite since it is unclear whether the single transmission line in claim 21 is intended to be included in or separate from the first and second transmission lines claimed in claim 12.

Re: claim 22. The phrase "a provisional transmission line" in the last line of the claim is indefinite. It is unclear to the Examiner whether the provisional transmission line of claim 22 is intended to be the same or different from that claimed in claim 17.

The remaining claims are indefinite due to their dependency from claim 17.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 12-16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Engle et al. in view of Fujioka et al.

Re: claims 12, 14, 15, and 21. Engle et al. disclose a communication and control system in combination with a railway train which comprises at least one main engine 26 and a plurality of carriages or wagons 30 as shown in figure 1, the communication and control system comprising: first and second bi-directional transmission lines 128,132,130,134 shown in figure 4 and disclosed in col. 6 lines 15-25 which extend parallel to and spaced from one another along the train; a main control 68 installed on the main engine and connected, in the main engine, to both the transmission lines via intervening elements and to brake control systems or devices 76,96 of the train as shown in figure 3; a plurality of slave control units disclosed in col. 6 lines 15-24 and in col. 6 lines 40-41 each of which is installed upon a respective carriage or wagon and is connected, in the respective carriage or wagon, via intervening elements to both the transmission lines, to valve units included within element 90 associated with pneumatic brake actuators as disclosed in col. 5 lines 39-52 (within one particular carriage or wagon Applicant shows a slave control unit being connected to a singular pneumatic brake actuator. However since Applicant claims a connection of each slave control unit

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to pneumatic brake actuators (plural), Examiner has interpreted the connections in the respective carriages or wagons as referring to connections in each respective carriage or wagon to the brake actuators and other system devices by way of intervening elements), two sensor devices 72,84 associated with the respective carriage or wagon via element 68, the transmission lines, and other intervening elements; the main control unit and the slave control units being arranged to communicate with one another via the transmission lines according to a predetermined serial protocol as disclosed in col. 6 lines 15-25; the main control unit being arranged to transmit the slave control units brake control signals of serial type, and to receive and acquire information or state signals likewise or serial type from the slave control units via at least one of the transmission lines as disclosed in col. 6 lines 15-24, but does not specifically disclose that the electrically operated valve units are solenoid valve units associated with the brake actuators.

Fujioka et al. teach the well-known use of solenoid valve units associated with brake actuators in col. 9 lines 13-14. Solenoid valves are conventionally used in association with brake actuators for improved switching speeds and widespread availability. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the brake actuators of Engle et al. with solenoid valve units, as taught by Fujioka et al., in order to provide a means of reliably controlling brake pressure in the brake pipe.

Re: claims 13 and 16. Engle et al. teach in figure 2 the use of a lead or main engine 26 and at least one further auxiliary engine 28, the auxiliary engine 28 being also

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provided with the control unit 68 capable of acting as a slave unit and arranged to receive synchronization signals coming from the control unit of the lead engine and to transmit information or state signals to the control unit of the lead engine via at least one of the transmission lines.

7. Claims 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Engle et al. in view of Fujioka et al. as applied to claim 12 above, and further in view of Hsien et al.

Engle et al., as modified, lack the specifically claimed communication and control system arrangement.

Hsien et al. teach in figure 2 the use of a control system wherein slave control units 20 disclosed in col. 2 lines 50-51 for the devices 21'-24' are arranged to acquire and transmit signals on one or the other transmission line 31,32 equally, and are moreover operable when they receive a transfer command signal to transfer to the other transmission line signals received on one line, the main control unit 10 being arranged to detect a condition in which the transmission lines 31,32 are both interrupted each between different pairs of slave control units and in such a case to send transfer command signal to at least two slave control units from among those in which there is an interruption of one of the transmission lines in such a way that all the slave control units are able to communicate with the main control units via a provisional transmission line comprising portions of both the transmission lines 31,32 and the slave control units 20 which have been sent the transfer command signal as disclosed in abstract lines 2-4 from the bottom.

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It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the communication and control system arrangement of Engle et al., as modified, to have included an arrangement, as taught by Hsien et al., in order to provide a level of redundancy in the communication system.

8. Claims 18 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Engle et al. in view of Fujioka et al. and Hsien et al. as applied to claim 17 above, and further in view of GB-2312260.

Engle et al. is silent as to how the system is powered. GB-2312260 teaches in figure 1 the use of electrical power supply devices Bat. 1 and Bat. 2 to distribute power.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the system of Engle et al., as modified, with electrical power supply devices, as taught by GB-2312260, in order to provide an old and well-known means of driving the control system.

9. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Engle et al. in view of Fujioka et al. as applied to claim 12 above, and further in view of Hsien et al. and Larsen.

Engle et al., as modified, lack the limitation of the transmission lines being operable to transmit electrical power and serial type signals simultaneously and lack the limitation of the lines being traveling wave lines.

Hsien et al. teach a control system comprising the use of lines operable to transmit electrical power and control signals simultaneously in col. 2 lines 49-53 with

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regards to the use of power line carrier communication technology and in col. 3 lines 51-53.

Larsen teaches in col. 4 lines 62-63 the use of a travelling wave type transmission line.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the transmission lines of Engle et al., as modified, to transmit both power and control signals simultaneously, as taught by Hsien et al., in order to reduce the number of lines needed in the system.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the transmission lines of Engle et al., as modified, to be of the traveling wave type, as taught by Larsen, in order to provide an alternate means of transmitting signals from the main control unit to the slave control units.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the lines of Engle et al., as modified, to be twin wires which is a well-known line construction, in order to provide improved structural integrity of the lines.

Response to Arguments

10. Applicant's arguments filed 12/10/03 have been fully considered but they are not persuasive.

Applicant fails to clearly set forth how the master and slave units of the Engle, as modified, are used in "an entirely different context than the main control unit and the

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slave control units as called for in Claim 12 of the present invention" as stated in the Remarks. Applicant fails to specifically point out what Applicant feels to be the shortcomings of the combination. Since the Engle reference, as modified, teaches a railway train with a plurality of carriages or wagons, first and second bi-directional transmission lines, a main control unit, a plurality of slave control units connected to valve units associated with brake actuators, and the limitation of the main control unit or master unit and the slave control units being arranged to communicate with each other via the transmission lines according to a predetermined serial protocol as set forth in the Action above, and since the Fujioka reference is used solely for the teaching of the use of a brake control system with valve units associated with brake actuators inherently having brake cylinders specifically being of the solenoid type, Examiner has maintained the rejections of claims 12-16 and 21.

Upon further review of the rejections of claims 17-20 and 22 and considering Applicant's absence of remarks with respect to the use of the Hsien reference, Examiner notes that it would have been obvious to one of ordinary skill in the railway brake control art to have looked to another control scheme for a teaching of the specific communication control requirements set forth in claim 17. Although the control scheme of the Hsien reference is in the environment of a traffic light, Examiner notes that the Hsien reference is used solely for the teachings of the specific communication control which is reasonably pertinent to the particular problem with which the Applicant is concerned since it involves a scheme providing control redundancy which results in improved system safety.

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Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melody M. Burch whose telephone number is 703-306-4618. The examiner can normally be reached on Monday-Friday (7:30 AM-4:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder can be reached on 703-308-3421. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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March 9, 2004

Melody M. Burch
3/9/04